



Complete Summary

GUIDELINE TITLE

Sodium in pre-dialysis patients.

BIBLIOGRAPHIC SOURCE(S)

Voss D. Sodium in pre-dialysis patients. Westmead NSW (Australia): CARI - Caring for Australians with Renal Impairment; 2005 Dec. 4 p. [4 references]

Voss D. Sodium in predialysis patients. Nephrology 2005 Dec;10(S5):S186-7.

GUIDELINE STATUS

This is the current release of the guideline.

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SCOPE

DISEASE/CONDITION(S)

Chronic kidney disease (CKD)

GUIDELINE CATEGORY

Assessment of Therapeutic Effectiveness
Evaluation
Management

CLINICAL SPECIALTY

Family Practice
Internal Medicine

Nephrology
Nutrition

INTENDED USERS

Dietitians
Physicians

GUIDELINE OBJECTIVE(S)

To evaluate whether there are differences in morbidity with varying daily dietary intake of sodium; in particular, it aims to assess the effect of the amount of dietary sodium on hypertension

TARGET POPULATION

Patients with chronic kidney disease

INTERVENTIONS AND PRACTICES CONSIDERED

Sodium restriction in combination with anti-hypertensive medication, as appropriate

MAJOR OUTCOMES CONSIDERED

- Morbidity
- Mortality
- Hypertension

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Databases searched: Medical Subject Heading (MeSH) terms and text words for kidney disease were combined with MeSH terms and text words for dietary sodium then combined with the Cochrane highly sensitive search strategy for randomised controlled trials and search filters for identifying prognosis and aetiology studies. The search was carried out in Medline (1996–November Week 2 2003). The Cochrane Renal Group Trials Register was also searched for trials not indexed in Medline.

Date of searches: 27 November 2003.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Comparison with Guidelines from Other Groups
Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Recommendations of Others. Recommendations regarding the effect of the amount of dietary sodium on hypertension in pre-dialysis patients from the following groups were discussed: Kidney Disease Outcomes Quality Initiative, British Renal Association, Canadian Society of Nephrology, and European Dialysis & Transplant Nurses Association/European Renal Care Association.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the levels of evidence (I–IV) can be found at the end of the "Major Recommendations" field.

Guidelines

No recommendations possible based on Level I or II evidence

Suggestions for Clinical Care

(Suggestions are based on Level III and IV sources)

- Patients with hypertension and progressive chronic kidney disease (CKD) should limit their sodium intake to below 100 mmol per day. (**Opinion**)

Low sodium diets may be unpalatable initially. Persistence with the diet by both patient, doctor and dietician is usually rewarding. The early use of diuretics (especially loop diuretics) is often required. Thiazide diuretics often fail to have a clinically significant natriuretic or hypotensive effect once there is moderate reduction in the glomerular filtration rate (GFR) (30 to 60 mL/min). In refractory oedema, however, thiazides in combination with loop diuretics may have a synergistic effect. The hypotensive effect of salt restriction is less as the GFR falls with progressive kidney disease.

People with a salt-losing nephropathy may have a high obligatory sodium loss, and sodium restriction may be harmful for them.

The introduction of acidosis correction therapy (e.g., sodium bicarbonate tablets) will increase the daily sodium intake and needs to be accounted for in the dietary advice.

Each 4 g Ural® sachet (Sigma, Clayton, Victoria) contains 28 mmol of sodium. Each sodium bicarbonate tablet contains 10 mmol of sodium/tablet.

1 teaspoon (approximately 5 g) of baking soda in 60 mL of water contains 60 mmol of sodium (see "Acidosis in pre-dialysis patients" guideline for bicarbonate content).

Many salt-substitute compounds contain potassium.

The DASH study looked at varying sodium diet content and hypertension and excluded subjects with renal impairment. There is an abundance of lower salt/sodium diets and improved hypertension control; however, these studies all exclude CKD subjects.

One review article discusses the benefits of sodium restriction in CKD. It summarises the improved control of hypertension in the patient with reduced sodium intake. Salt restriction alone is not adequate to control hypertension in the CKD patient, and anti-hypertensive agents are required (often in combination) to achieve desired levels. In early renal impairment, sodium restriction alone may adequately manage oedema; however, diuretics are needed in oedematous states with more advanced renal failure.

Sodium restriction, in combination with appropriate anti-hypertensive medication, assists in the control of extracellular volume and hypertension in CKD.

Definitions:

Levels of Evidence

Level I: Evidence obtained from a systematic review of all relevant randomized controlled trials (RCTs)

Level II: Evidence obtained from at least one properly designed RCT

Level III: Evidence obtained from well-designed pseudo-randomized controlled trials (alternate allocation or some other method); comparative studies with concurrent controls and allocation not randomized, cohort studies, case-control studies, interrupted time series with a control group; comparative studies with historical control, two or more single arm studies, interrupted time series without a parallel control group

Level IV: Evidence obtained from case series, either post-test or pretest/post-test

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management of sodium in predialysis patients

POTENTIAL HARMS

People with a salt-losing nephropathy may have a high obligatory sodium loss, and sodium restriction may be harmful for them.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Implementation and Audit

Low sodium diets may be unpalatable initially. A gradual introduction of the low salt diet is recommended to maximise tolerance and acceptance. A useful stepwise introduction of such a diet is to stop adding salt to food at the time of eating (i.e., remove salt from the table). When this adjustment is tolerated, then a gradual reduction in the salt added in the cooking should be made, with eventually no salt in cooking. Altering the manner in which food is cooked – e.g., microwave cooking often does not require the addition of salt (when compared with cooking in the pot or wok), and still the food retains taste. Finally, a review of the patient's diet should be conducted by a renal dietician. This is particularly important to identify the 'hidden salt' in foods – e.g., flavourings, ready-made meals, preserved meats and breads, and their spreads (e.g., Marmite and Vegemite).

A useful way to clinically assess sodium intake is to measure the sodium in a 24-hour urine collection. Random 24-hour urinary excretion analysis for sodium can give an indication of the excess of sodium in the diet. Therapy should aim to keep the 24-hour excretion below 100 mmol/24-hour period.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2005 Dec

GUIDELINE DEVELOPER(S)

Caring for Australasians with Renal Impairment - Disease Specific Society

SOURCE(S) OF FUNDING

Industry-sponsored funding administered through Kidney Health Australia

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Author: David Voss

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All guideline writers are required to fill out a declaration of conflict of interest.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [Caring for Australasians with Renal Impairment Web site](#).

Print copies: Available from Caring for Australasians with Renal Impairment, Locked Bag 4001, Centre for Kidney Research, Westmead NSW, Australia 2145

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- The CARI guidelines. A guide for writers. Caring for Australasians with Renal Impairment. 2006 May. 6 p.

Electronic copies: Available from the [Caring for Australasians with Renal Impairment \(CARI\) Web site](#).

PATIENT RESOURCES

None available

NGC STATUS

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